CLAIMS

1. Method for concentrating particles (100), including the following steps:

a) placement of said particles close to and / or on at least one waveguide (108) of a support (104),

b) injection of light radiation R into the said waveguide, injection causing grouping of particles into one or several clusters on the guide,

c) concentration or blocking of particles into one or several stationary clusters.

2. Method for concentrating particles, in which said support comprises several waveguides, step b) leading to the formation of several clusters distributed on one or several of said waveguides.

3. Method for concentrating particles, according to either claim 1 or 2, in which said light radiation R forms one or more stationary waves, to concentrate particles in several stationary clusters (202, 204, 206) on the same waveguide (108).

4. Method according to claim 3, the stationary waves being produced through at least one diffraction grating (200).

5. Method according to claim 3, in which the waveguide forms at least one optical loop (210),

the stationary waves being produced when the radiation passes through this optical loop.

6. Method according to claim 5, in which the waveguides join together at at least one concentration point (220), step b) leading to the formation of a single cluster located on the concentration point.

7. Method according to claims 1 to 6, also including a step for marking particles before step a), in order to modify their optical index.

8. Method according to one of claims 1 to 7, the particles being cells or macromolecules or microballs.

9. Method according to one of claims 1 to 8, the particles being glass balls and / or gold balls.

10. Method according to one of claims 1 to 9, the inserted radiation being in a spectral range between the near ultraviolet and infrared.

11. Method according to claim 10, in which the radiation is in the range between the visible red and infrared.

12. Method according to one of claims 1 to 11, the particles being immersed in a liquid.

13. Method according to claim 12, the liquid being water.

14. Method according to one of claims 1 to 13, also including stopping injection of light radiation as soon as a cluster is formed.

15. Particle concentration device including one or several waveguides (108), the waveguides being surrounded on both sides by at least two diffraction gratings (212).

16. Device according to claim 15, also including means (340, 330) for observing the particles and a portion of the waveguide(s) (108).